FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION
(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: The Nature Conservancy in Montana

B. Mailing Address: 32 South Ewing Street

C. City: Helena State: MT Zip: 59601

Telephone: 406-495-2261

D. Contact Person: Nathan Korb, Southwest Montana Science and Stewardship Director

Address if different from Applicant:

City: State: Zip:

Telephone: 406-925-1144 (cell)

E. Landowner and/or Lessee Name (if other than Applicant): n/a

Mailing Address:

City: State: Zip:

Telephone:

II. PROJECT INFORMATION*

A. Project Name: Centennial Valley Culverts and Stream Connectivity

River, stream, or lake: Tributaries of Red Rock River including: Hellroaring Creek (2), Long Creek, Elk Springs Creek, Bear Creek, Fish Creek

Location: Township 13 and 14 S Range 1E to 5W Section (see figure 1)

County: Beaverhead

B. Purpose of Project:

To increase connectivity for native fish such as westslope cutthroat trout, Arctic grayling, burbot, and other aquatic organisms; and to improve overall stream health by replacing or removing six poorly designed, undersized culverts on priority streams in the Centennial Valley (Figure 1).

C. Brief Project Description:

In the Centennial Valley, gravel roads run perpendicular to nearly all tributary streams and the minimum standards for culverts used by Beaverhead County result in landscape-scale fragmentation for fisheries resources. In addition, undersized culverts often wash out during periods of high-flow events, as is occurring this spring. In recent years, the Conservancy has collaborated with county, state, and federal partners to remove or replace undersized culverts with open-arch culverts, but our success has been at a limited scale. High velocities in under-sized culverts prevent native fishes from migrating to seasonal habitats such as spawning habitat and thermal refuges. In fact, some of the extirpated populations of westslope cutthroat trout and Arctic Grayling may have been directly related to the fragmentation of road crossings. Many amphibians, small mammals, and invertebrates also require natural stream beds or stream banks for movement along streams. These habitats do not exist in undersized culverts. The hydrologic processes that maintain functioning aquatic ecosystems also depend upon passage of channel-forming flows and efficient transport of bedload. Undersized culverts result in constricted passages that create zones of artificially increased stream energy (i.e. "shotgun" effect of pooled spring runoff), cause rapid aggregation and degradation downstream of burn areas (Figure 2), introduce significant fine sediment into streams, deplete bedload supply downstream, and require frequent intervention and maintenance. Several of the streams in this proposal divert high flows into road ditches where water either flows long distances to the next culvert or ponds upstream of the culvert (Figure 3). Due to the hydrologic problems associated with these culverts, they require frequent intervention and maintenance by the county road department. To increase connectivity for native fisheries and aquatic ecosystems in the Valley, this collaborative effort will remove or replace six undersized culverts with open-arch culverts or small bridges on priority tributaries of Red Rock River in the Centennial Valley between 2010 and 2012: Long, Hellroaring (2), Elk Springs, Bear, and Fish Creeks. This will increase available Arctic grayling spawning habitat and burbot habitat in four channels, improve connectivity for isolated westslope cutthroat trout between seasonal habitats on one creek, and prepare a final creek for re-colonization by grayling. Improving the ability of fish and other aquatic organisms to move freely is also an important strategy for enhancing their resilience to climate change.

D. Length of stream or size of lake that will be treated: Approximately 50' per channel or 300' total; project will benefit connectivity among habitats along much longer reaches.

E. Project Budget:

Grant Request (Dollars): **$ 68,050**

Contribution by Applicant (Dollars): $ **29,120** In-kind $
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ In-kind $ USFWS $26,500 Beaverhead County $11,000 ($5,000 in 2010 and $6,000 in 2011; $7000 in 2012 TBD – no current commitment)
(attach verification - See page 2 budget template)

Total Project Cost: **$ 141,670**

F. Attach itemized (line item) budget – see template

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. Attach land management and maintenance plans that will ensure protection of the reclaimed area.

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:

Arctic grayling, Westslope cutthroat trout, mountain whitefish, burbot, mottled sculpin

B. How will the project protect or enhance wild fish habitat?:

The proposed project will enhance wild fish habitat by removing or replacing six undersized culverts with open-arch culverts and bridges on biologically important tributaries in the Centennial Valley. These streams contain high-priority native fish, such as Westslope cutthroat trout, Arctic Grayling, and burbot. The undersized culverts have prevented native fish from migrating to spawning and thermal refuge habitat. In addition, the undersized culverts have resulted in constricted passages that create zones of artificially increased stream energy, cause rapid aggregation and degradation downstream of burn areas, introduce significant fine sediment into streams, and prevent channel-forming high flows from maintaining downstream habitats. The removal of these undersized culverts will increase connectivity for native fisheries in the Centennial Valley and improve overall stream habitat.

C. Will the project improve fish populations and/or fishing? To what extent?:

FWP ranks Red Rock Creek and its tributaries in the Centennial Valley as a high to outstanding value fisheries resource. Replacing these culverts will improve fisheries habitat and fish populations, and thus fishing in the Centennial Valley. Specifically, the Conservancy removed three culverts and approximately 60m of road at one site on Long Creek in 2010 to promote connectivity for grayling and natural channel recovery (Figure 4). Two new culverts will be one installed on channels of Hellroaring Creek (Figure 5) to distribute high flows across the active alluvial fan, ultimately reducing erosive energy in the highly sensitive, entrenched reach on the main channel downstream. Replacing the culvert on Elk Springs Creek will reconnect historic spawning habitat of Arctic grayling. In addition, FWP and USFWS are using remote site incubators on Elk Springs Creek to re-establish a grayling meta-population to Upper Red Rock Lake on Red Rock Lakes Wildlife Refuge. The refuge will conduct design and engineering in 2011 and installation as soon as 2012. The culvert on Bear Creek will increase connectivity for westslope cutthroat trout between seasonal habitats above and below the road and improve bedload transport and habitat conditions below the road. For over 60 years, Fish Creek was mostly diverted for irrigation and would be a dry stream channel for much of the year. Over the past four years, USFWS has acquired the formerly irrigated lands, water rights, and Fish Lake dam authority, thereby allowing flows to remain instream on this historic grayling creek. The increased instream flows are not adequately conveyed by the existing culvert and addressing the road crossing is the first step to restoring this creek for grayling. Improving the ability of fish and other aquatic organisms to move freely is an important climate change strategy. Together, these culverts represent the most biologically important and problematic road crossings for native fishes in the Centennial.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

The proposed project will improve habitat conditions and reconnect populations of Arctic grayling, burbot, and westslope cutthroat trout by reconnecting streams in the Centennial valley. This is turn will increase the fishing opportunities in the Valley and promote long-term resilience of fish populations.

E. If the project requires maintenance, what is your time commitment to this project?:

The County will continue to maintain the road crossings that will be altered in the proposed project.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

In the Centennial Valley, gravel roads run perpendicular to an extensive number of streams and the minimum standards for culverts used by Beaverhead County have caused habitat fragmentation for high value fisheries resources in the Valley.

G. What public benefits will be realized from this project?:

The public will benefit from more resilient fisheries in the Valley. In addition, these undersized culverts frequently wash out during high flow periods. Replacing the culverts with bridges or arch culverts will decrease the long-term cost of road maintenance to Beaverhead County and its residents as well as provide safe, functional roadways.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No

J. Is this project associated with the reclamation of past mining activity?:

No

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: _____ Date: _____

Sponsor (if applicable): _____

***Highlighted boxes will automatically expand.**

Mail To: **Montana Fish, Wildlife & Parks**
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

Incomplete or late applications will be returned to applicant.
Applications may be rejected if this form is modified.
*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

Figure 1. Priority culvert sites in the Centennial Valley

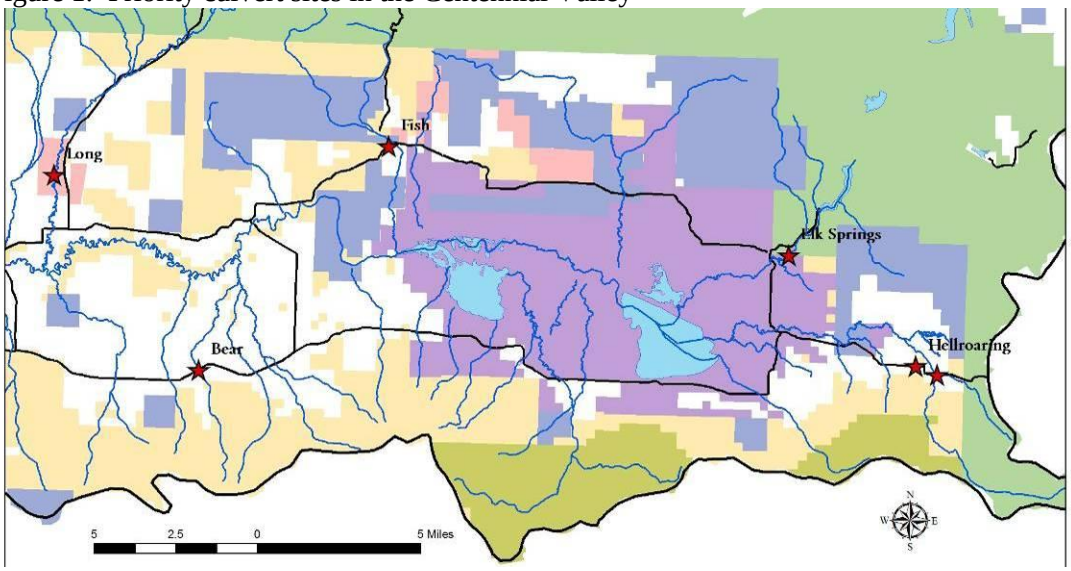

Figure 2. Example of post-burn sediment load through an undersized stream crossing (looking upstream). Note the whirpool and amount of gravel deposited upstream of road rather than replenishing downstream habitats. (5/29/08)

Figure 3. Hellroaring Creek water flowing and ponding in the road right-of-way. Hellroaring proposed culvert will prevent this and convey high flows across road (7/3/10).

Figure 4. Long Creek culvert site on Conservancy property before and after complete removal, completed in fall 2010.

Figure 5. Hellroaring flow paths and culvert locations